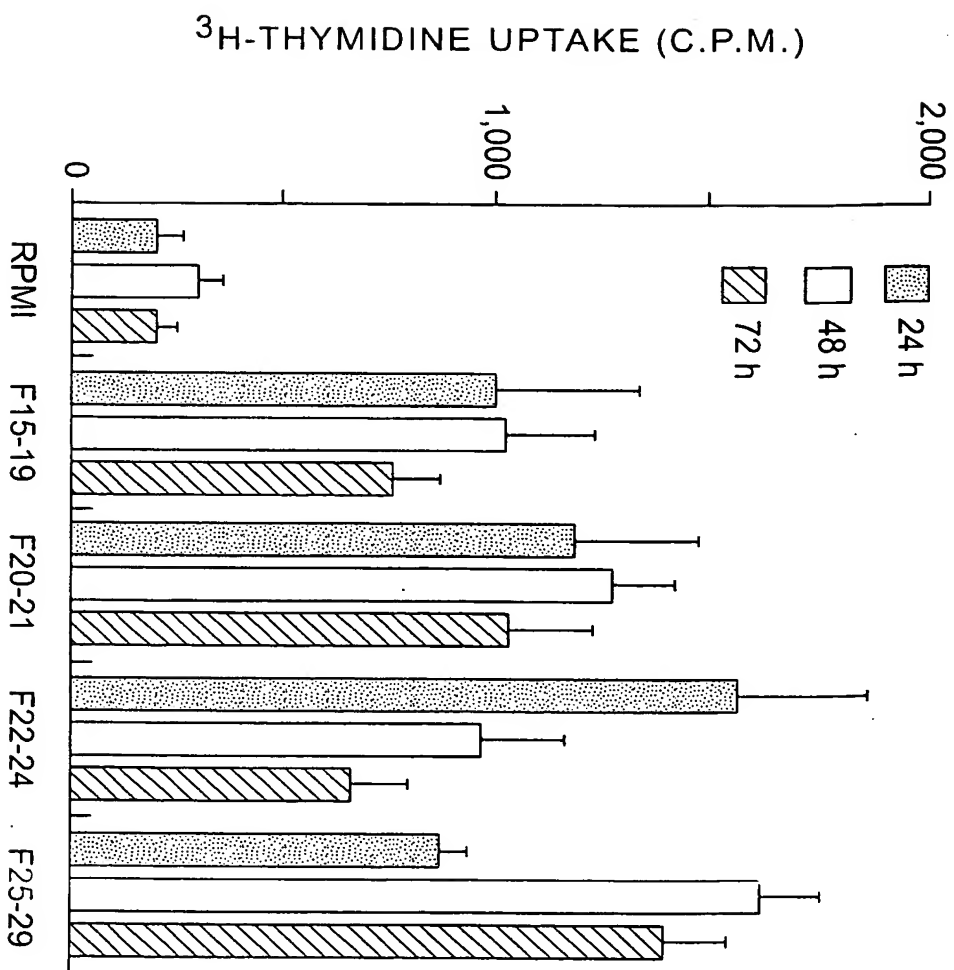
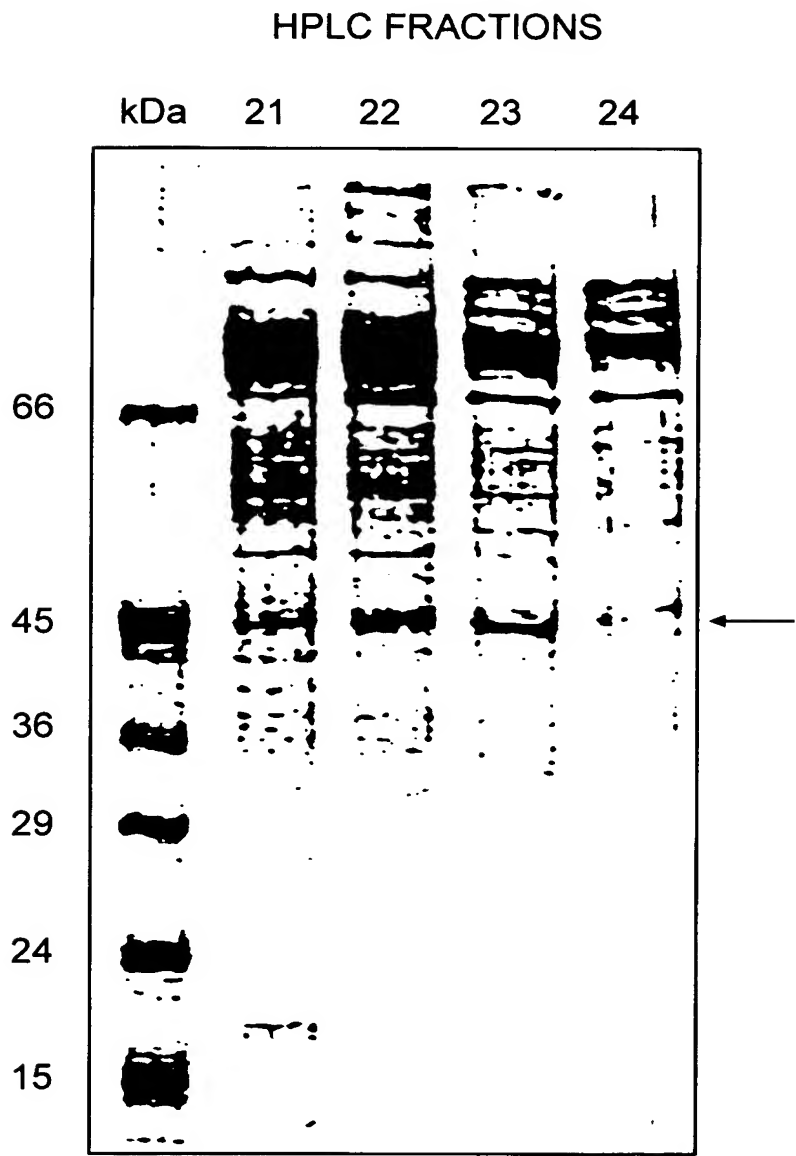


**FIG. 1A**



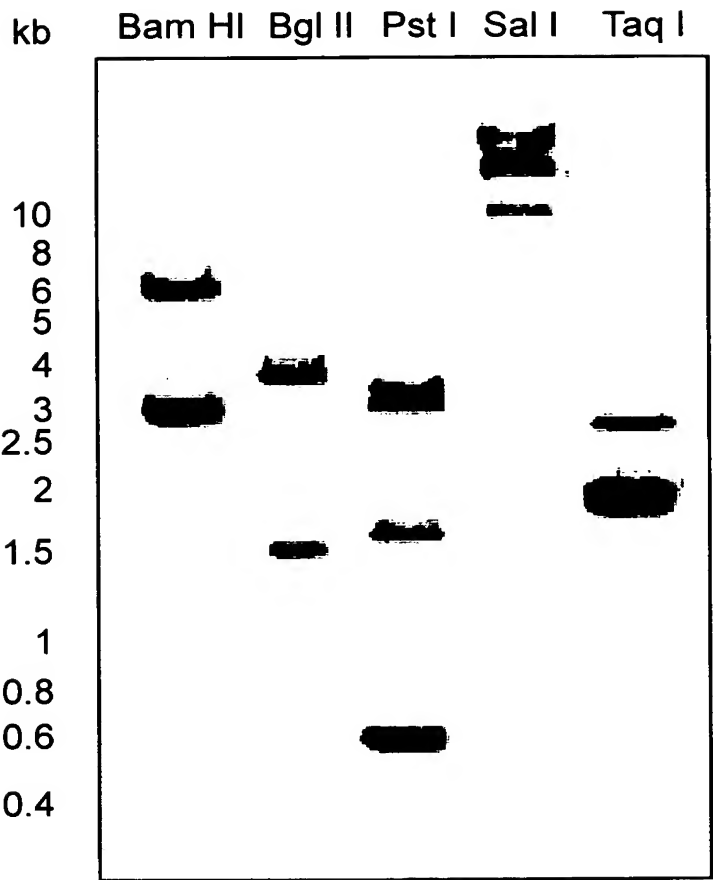
**FIG. 1B**



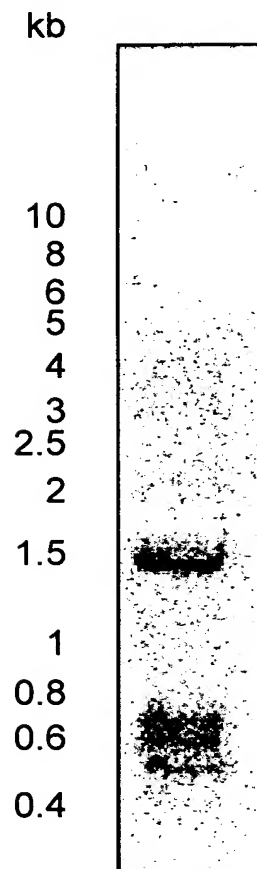
**FIG. 1C**

Tc	MRKSVCPKQKFFFSAPFEFFFCVFPPLISRTQEKLLFDQYKIKKEKEKKKNQORANRREHQQREIMREKKS	75
Cs	-----MKFSKG	6
Pa	-----MQR	3
<hr/>		
Tc	FTCIDMHTEGEARIVTSGLPHPGSNMAEKKAYLQENMDYLRRGIMLEPRGHDMFGAFLFDPPIEGADLGWVF	150
Cs	IHAIDSHMTGEPTRIVVGGIPQINGETMADKKKYLENDLDYVRTALMHEPRGHNDMEGSIITSSNNKEADFGIIF	81
Pa	IRIIDSHTGGEPTRLVIGGFDDLGGQDMAERRRLLGERHDAMRAACILEPRGSDVLVGCALLCAPVDPEACAGVIF	78
<hr/>		
Tc	MDTGGYLMCGHNSIAAVTAVETGIVSVPAKATNPVVLDTPAGLVRGTAHLQSGTSESVSNASII NVPSFLYQ	225
Cs	MDGGGYLMCGHSGIGCATVAVETGMVEMVEPTNIN--MEAPAGLIKAKMVEN---EKVKEVSITNVPSFLYM	151
Pa	FNNSGYLGMCGHGTIGLVASLAHLGRIGPV-----HRIETPVGEVEATLH-----EDGSVSVRNVPAYRYR	140
<hr/>		
Tc	QDVVVVLPKPYGEVRVDIAFGCNFFAIVPAEQLGIDISVQNL SRLQEAGELL RTEINRSVKVQHPQLPHINTVDC	300
Cs	EDAKLEVPSLNTITFDISFGGSFFAI IHAKELGKVETSQVDVLKKGIEIRDLIN EKIKVQHPLEHIKTVDL	226
Pa	RQVSVEVPGI-GRVSGDIAMGCMWFFLVAGH--QRLAGDNL DALTAYTVAVQQAALD----QDIRGEDGAIDH	208
<hr/>		
Tc	VEIYGPPTNPEANYKNVVI FGNRQADR	371
Cs	VEIYDEPSNPEATYKNVVI FGQGVDR	297
Pa	IELFAD--DPHADSRNFVLC PGKAYDR	279
<hr/>		
Tc	RIPGVKVPVTKDAEEGMLVTAETGKAFIMGFNTMLEFDPDPFKNGFTLKQ*	423
Cs	KVGEFD-----AI IPEITGAYITGFNFHVIDPEDPLKYGFTV*--	335
Pa	PGGPVIVPTIRGRAHVSAEATLL LADDDPFAMGIRR*-----	314

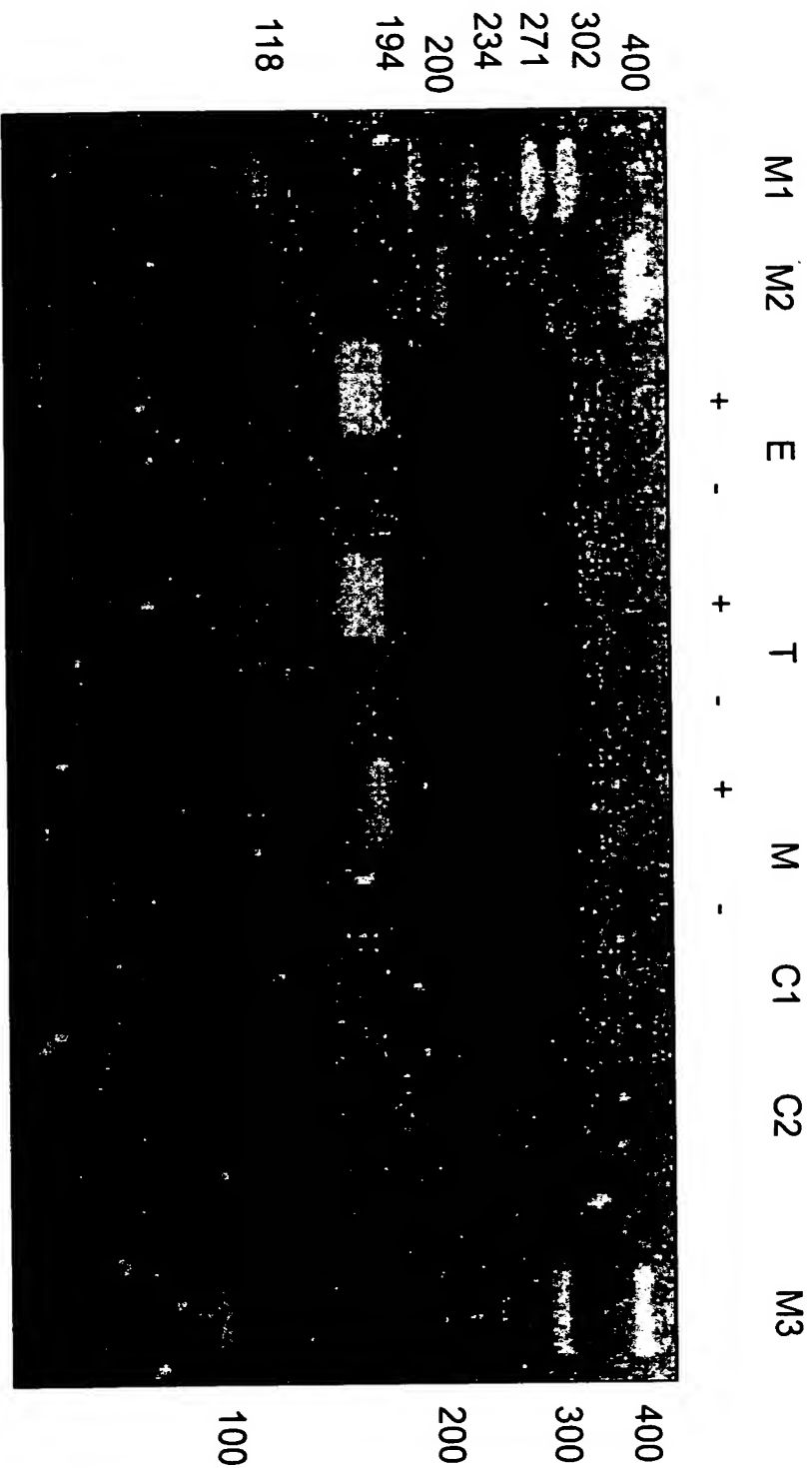
FIG. 2



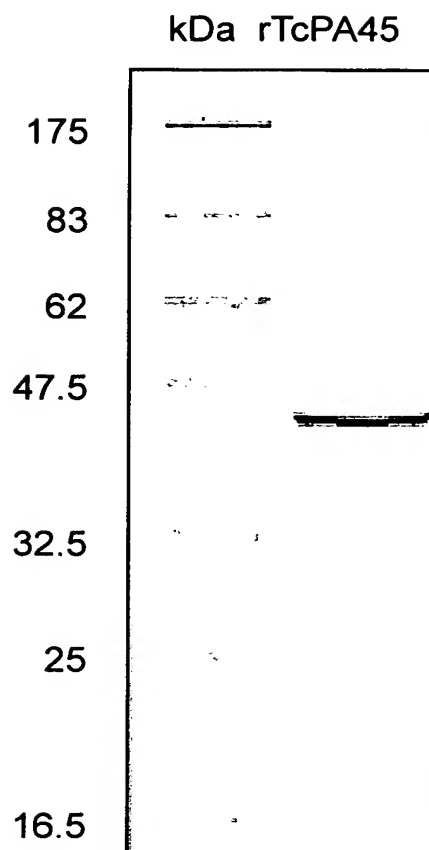
**FIG. 3A**



***FIG. 3B***

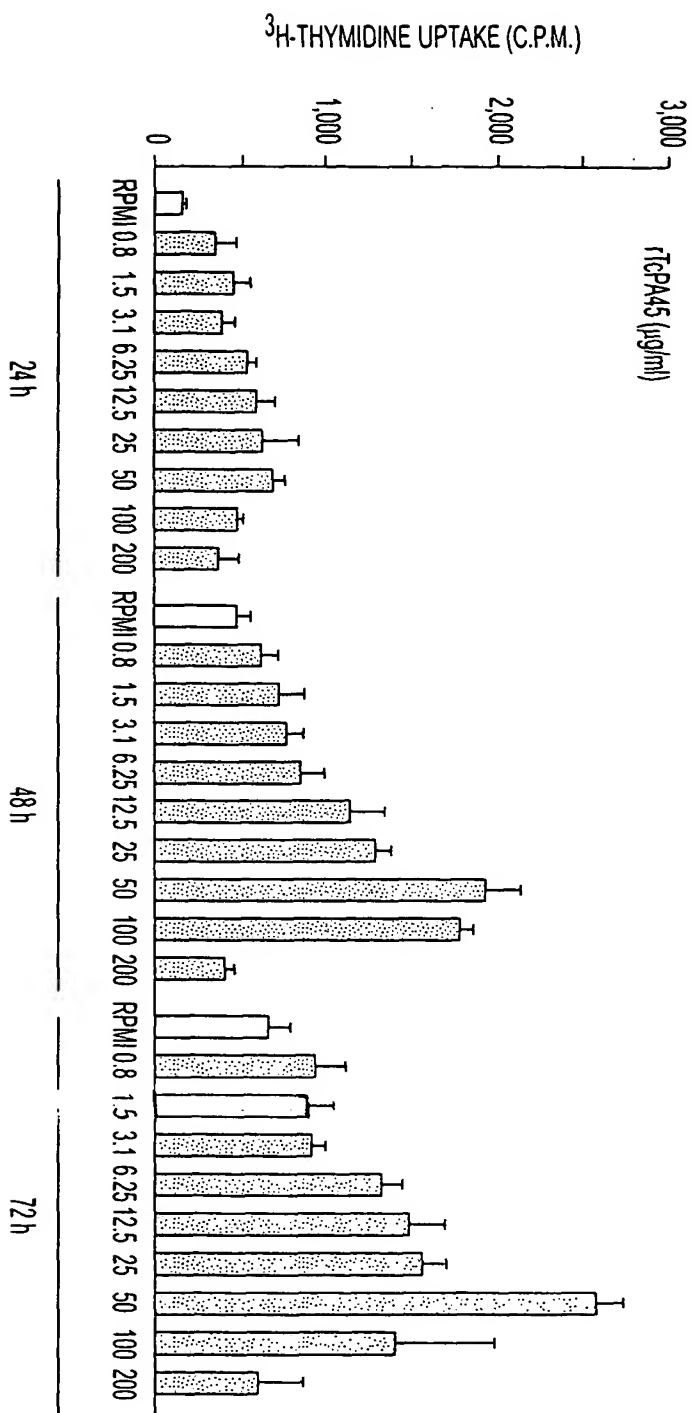


**FIG. 3C**

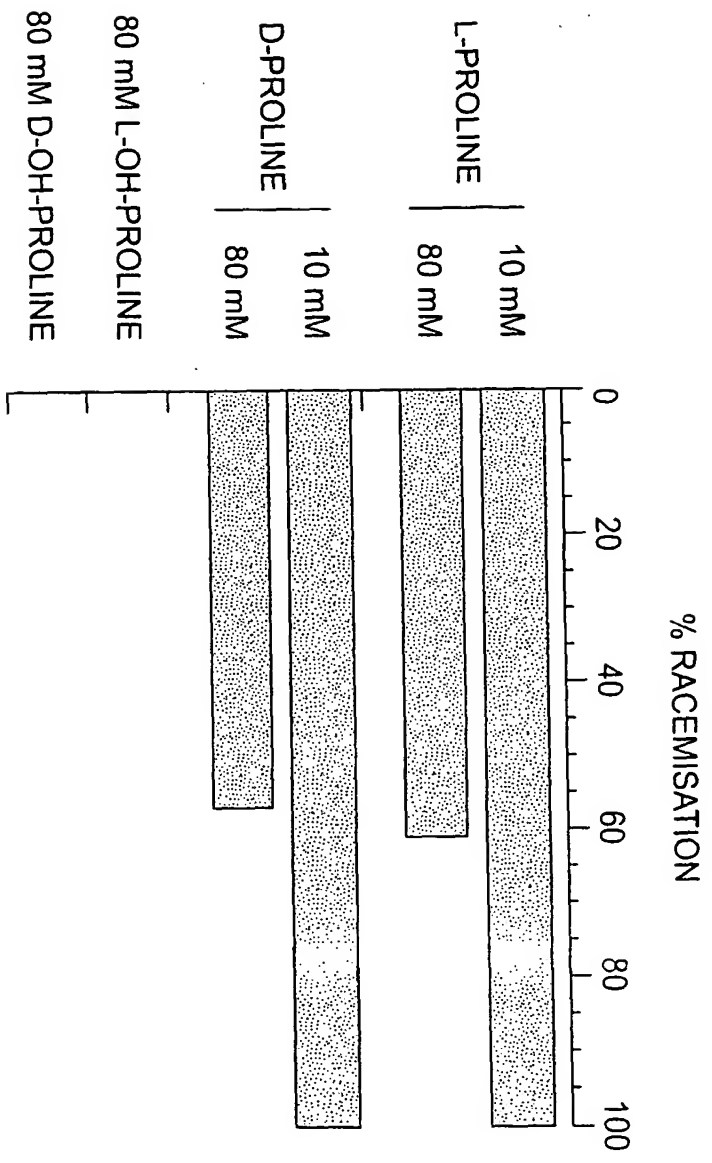


**FIG. 4A**

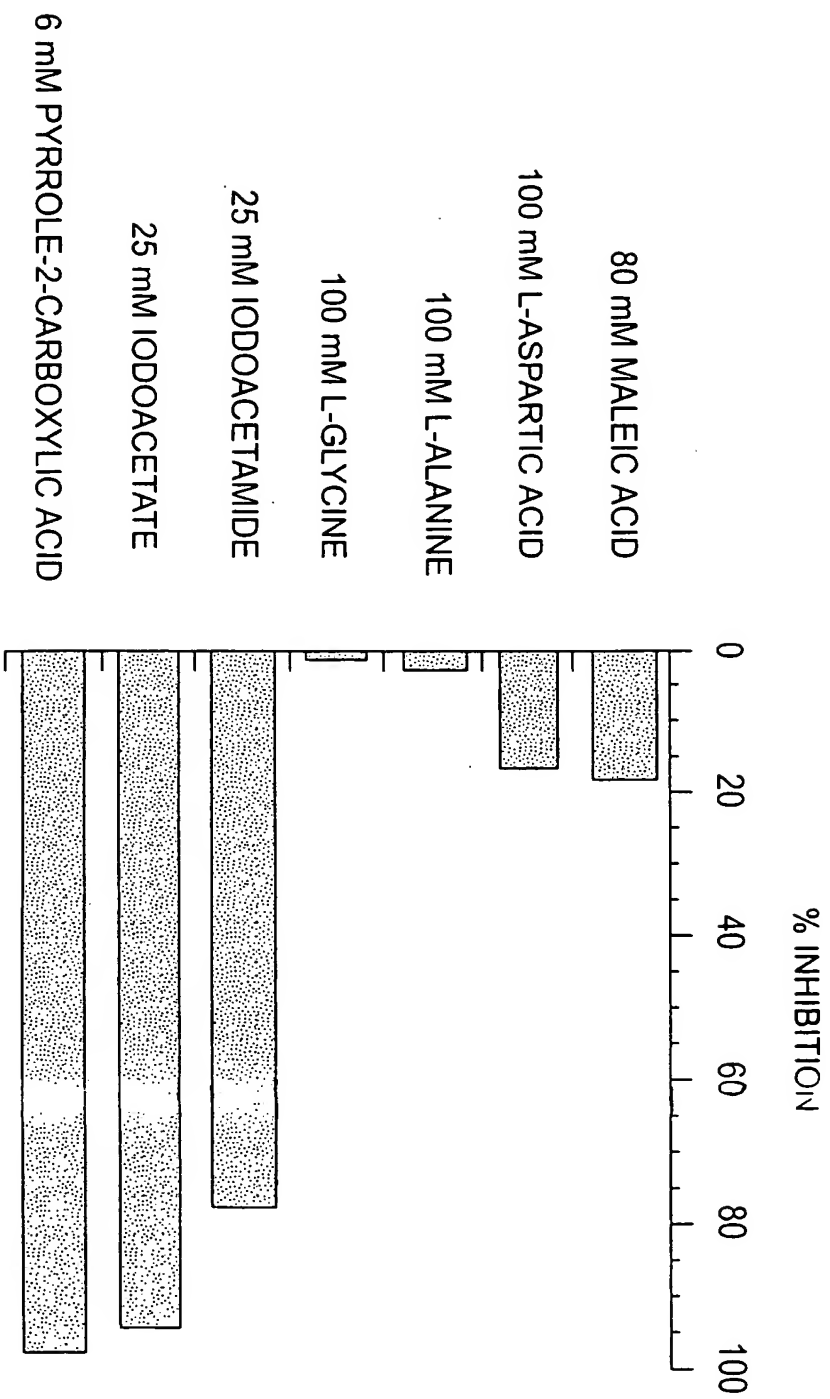




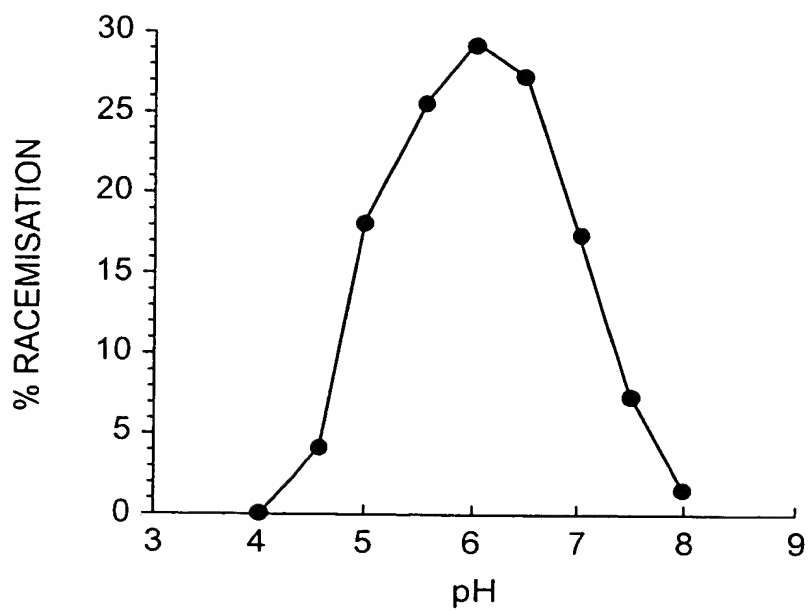
**FIG. 4B**



**FIG. 4C**



**FIG. 4D**



***FIG. 4E***

POLYPYRIMIDINE RICH REGION



SPLICE LEADER  
ACCEPTOR SITES

SIGNAL

CCTTTTCTTTTAAACAAACAAATTCGGGGGAATATGACAGGGTATAGCGTAAAGTGTCTGCCAACAACAAATTTT  
TTTCCGCCCTCCCATTTTGTGTGTTCCCTGATCTTCGAACAGGGCAGGAAAGCTTCTGTTGACCAAAATAT  
F S A F P F F F F C V F P L I S R T G Q E K L L F D Q K Y  
AAAAATTATTAAGCGCGAGAAAAAGAAAAATCAACGACCAACAGAGACACCAACAAAAAGGAATTATGCGATTT  
K I I K G E K K E K K N Q R A N R R E H Q Q K R E I M R F  
AAGAAATCATTCACATGCATCGACATCGAAGTGAAGCAGCAGGATTGTGACGAGTGTTCACACATTCCAGTTGAA  
K K S F T C I D M H T E G E A A R I V T S G L P H I P G S N  
ATGGCGAGAGAAAGCATACCTCGACGAAACATGATTTGAGCGCTGGCATATGCTGGAACCACTGGTCATGATATGTT  
M A E K K A Y L Q E N M D Y L R R G I M L E P R G H D D M F  
GGAGCCTTTTATTTGACCCCTATTGAAGAAGCGCTGACTTGGCGATGTAATTCATGATACCGGTGCTAATTAATATGTGACAT  
G A F L F D P I E E G A D L G M V F M D T G G Y L N M C G H  
AACTCAATTGCAGCGGTTACGGCGGAGTTGAACGGGAATTGTAGCGCTGCCGGGAGGCAACAATGTTCCGTTGCTCGACACA  
N S I A A V T A A V E T G I V S V P A K A T N V P V V L D T  
CCTGGGGGTTGGTGGCGGTTACGGCACACCTTCAGAGTGTACTGAGAGTGAGGTGTCAAATGCCAGTATTATCAATGTACCCTCATTT  
P A G L V R G T A H L Q S G T E S E V S N A S I I N V P S F  
TTGTATCAGCAGGATGTGGTGTGTTGCCAAGCCCTATGCTGAAGTACGGGTGATATTGCAATTTGAGGCAATTTTTCGCCATT  
L Y Q Q D V V V V L P K P Y G E V R V D I A F G G N F F A I  
GTCCCGCGGAGCAGTTGGGAATTGATATCTCCGTTCAAAACCTTCACAGGCTGACAGGAGGAGGAGAACCTTCTGCGTACTGAATCAAT  
V P A E Q L G I D I S V Q N L S R L Q E A G E L L R T E I N

FIG. 5A

CGCAGTGTGAAGGTTGACGACCCCTCAGCTGCCCATATTACACTGTGACTGTGTGAGATATACGGTCCGCCAACGAACCCGGAGGCA 970  
R S V K V Q H P Q L P H I N T V D C V E I Y G P T N P E A 312  
AACTACAAGACGTTGTGATATTGGCAATCCGACGGGATCGCTTCATGTGGACAGCACCAGCCAGATGGACACTTAT 1060  
N Y K N V V I F G N R Q A D R S P C G T G T S A K M A T L Y 342  
GCCAAGGCCACGTTCCGATCGAGAGACTTTTGTGTACGAGACGATACTCGGCTCACTTTCCAGGGCAGGTTACTTGGGAGAGCGA 1150  
A K G Q L R I G E T F V Y E S I L G S L F Q G R V L G E E R 372  
ATACCGGGGTGAAGTGCCTGACCAAGATCCGAGAGAGGATGCTCGTTGTACGGCAGAGAAATTACTGGAAGCCTTTTATCATG 1240  
I P G V K V P V T K D A E E G M L V V T A E I T G K A F I M 402  
GGTTCAACACCATGCTGTTTGACCCACGATCCGTTTAAGACGATTCACATTAAAGCAGTAGATCTGTTAGAGCACAGAACTATT 1330  
G F N T M L F D P T D P F K N G F T L K Q 423  
GGGAACACGTGCCAACAGGTGCTGCTACGTGAAGGCTATTGAATGATCGTTTTTTTTTAATTTTAAATTTTAAATTATAGTCATT 1420

ATTATTAAATTTTTTTTTTGTGTTGGGGTTTCAACGGTACCGCCTTGGGAGCAGGGAACGATACCGCCGCGACAATTTTTTGCCTTTAT 1510

TTTCATTTTCATCTTCTTACCCCAACCCCTTGCTTCCACCGGTCCGGGGGGCTTGTGGGTGAGGAGTCTTAAATCCCGACCTCGG 1600

AGGAATAACATATTTCATTTTCATATCTTGGAATCAAAAGGCAT 1651

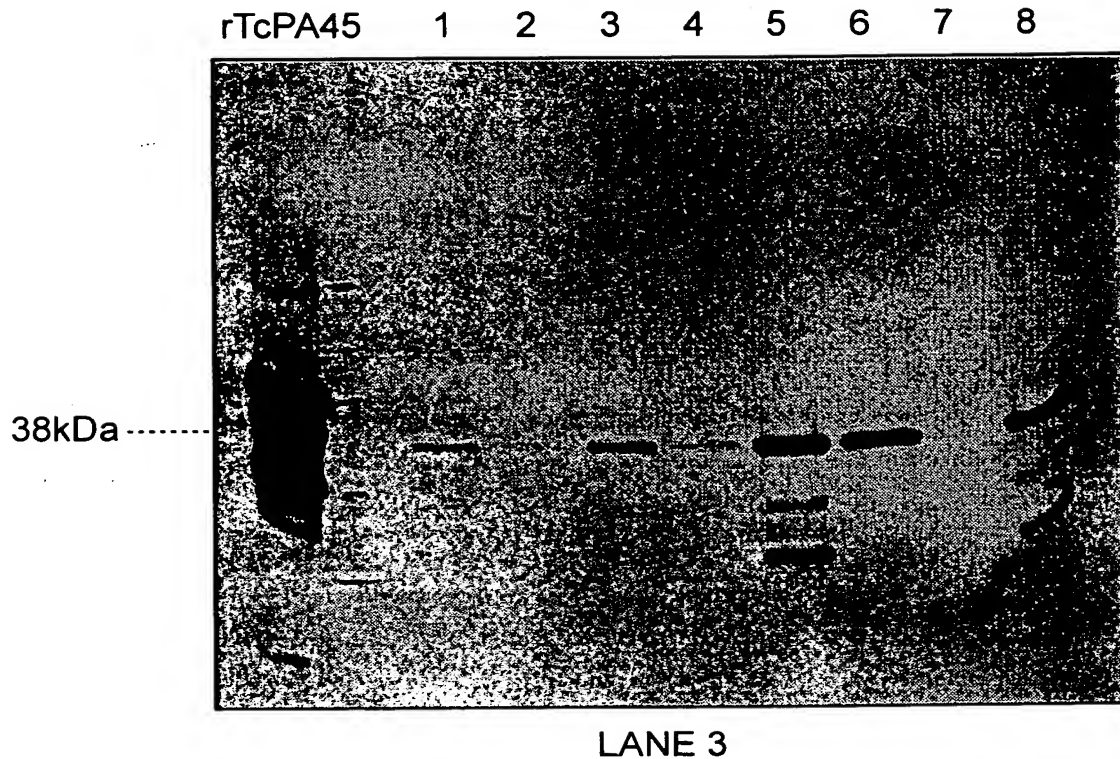
POLYADENILATION SITE

OBS: UNDERLINED THE SEQUENCED PEPTIDES USED TO DEDUCE DEGENERATED PRIMERS FOR CLONING

NUCLEOTIDE SEQUENCE AND PEPTIDE SEQUENCE TcPA45

FIG. 5B

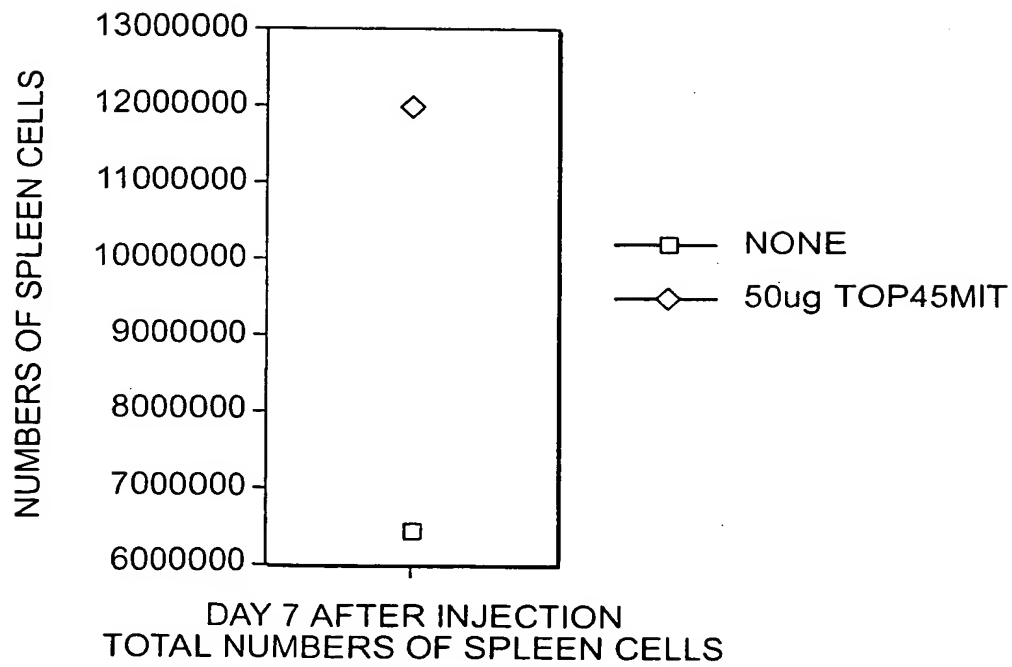
WESTERN BLOT



SOLUBLE FRACTION OF EPIMASTIGOTES EXTRACT (CYTOSOLIC)  
REVEALED WITH ANTIBODY DIRECTED TO rTcPA45

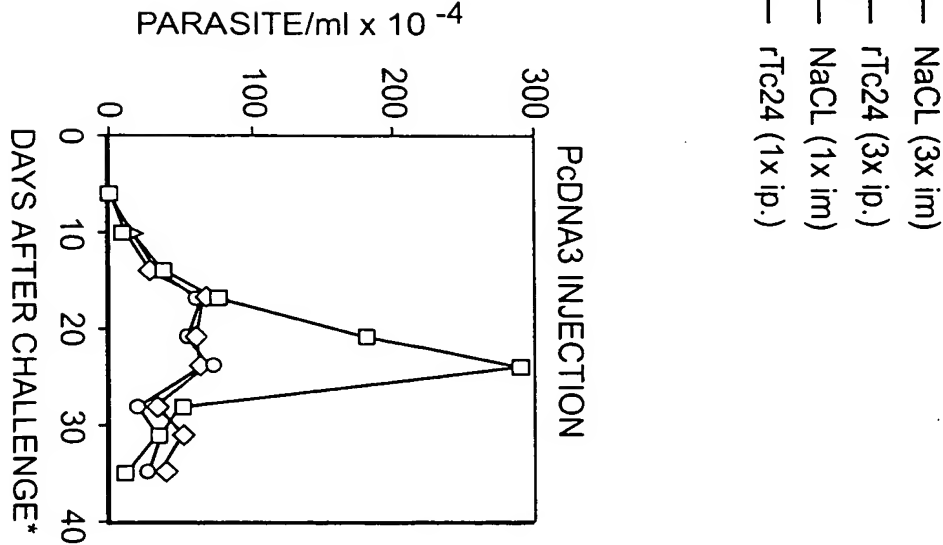
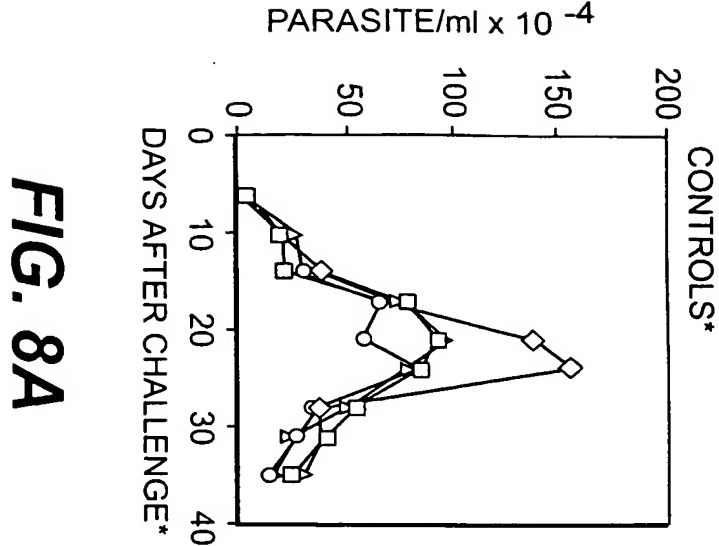
----- DEMONSTRATES THE EXISTANCE OF AN INTRACYTOPLASMIC  
FORM OF TcPA45 IN THE PARASITE

**FIG. 6**



**FIG. 7**





**FIG. 8B**

- EMPTY pcDNA3 (1x i.m.)
- ◇— LONG pcDNA3 (1x i.m.)
- SHORT pcDNA3 (1x i.m.)
- EMPTY VR 1020 (3 i.m.)
- ◇— LONG VR 1020 (3 i.m.)
- SHORT VR 1020 (3 i.m.)
- EMPTY VR 1020 (1 i.m.)
- ◇— LONG VR 1020 (1 i.m.)
- SHORT VR 1020 (1 i.m.)

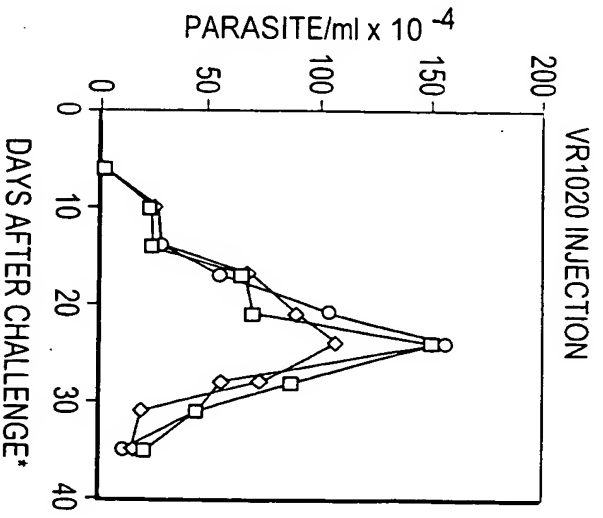
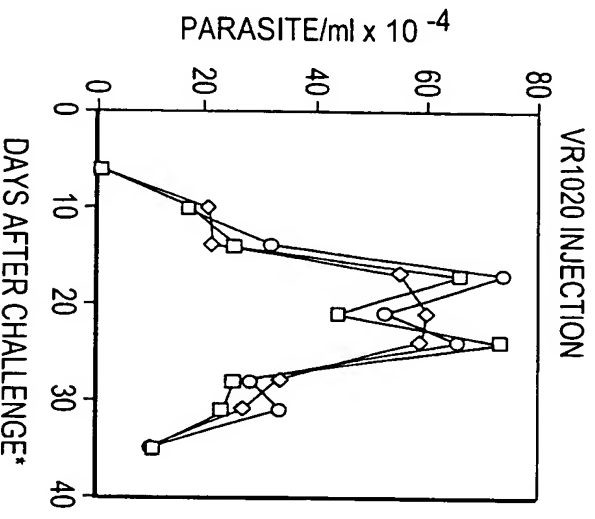
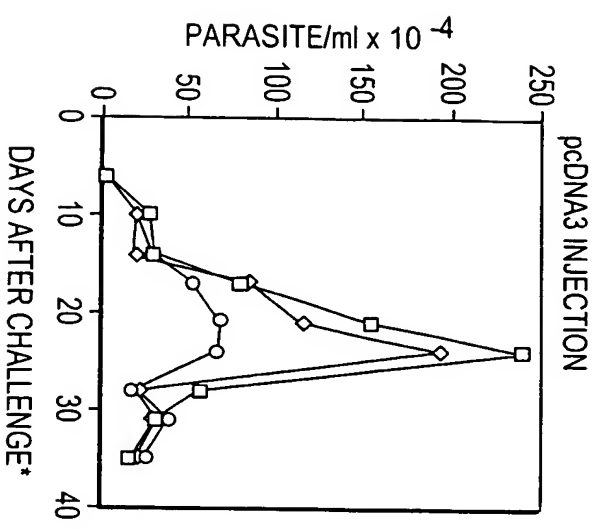


FIG. 8C

FIG. 8D

FIG. 8E

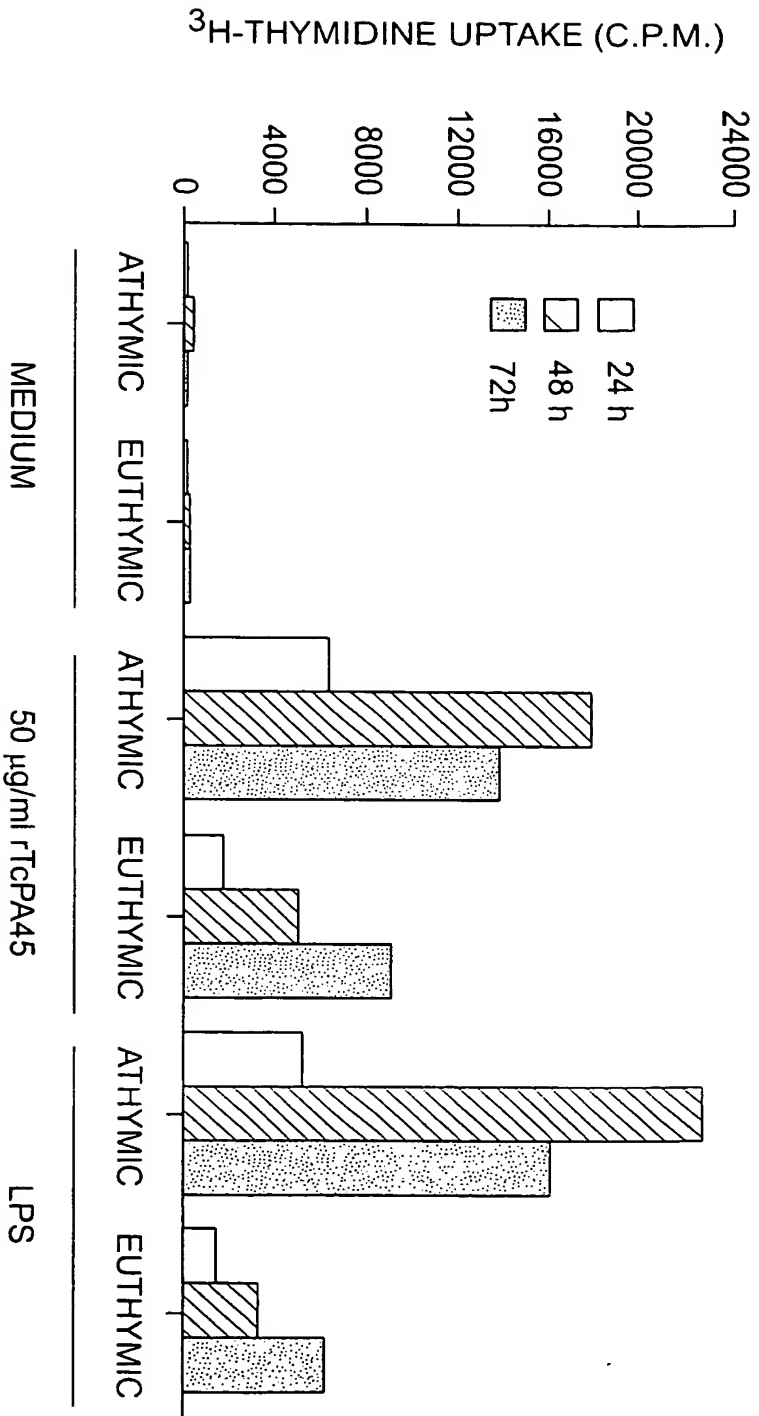
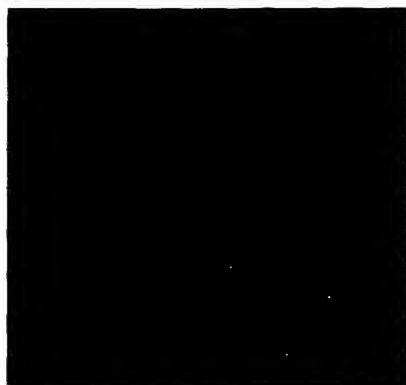
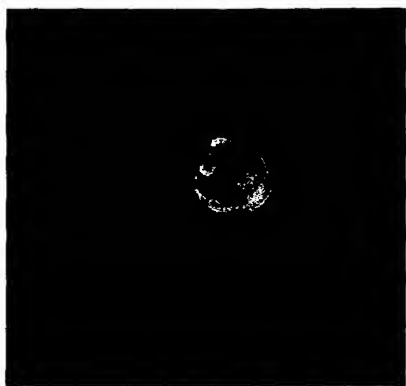


FIG. 9

Alexa-F (ab')<sub>2</sub>



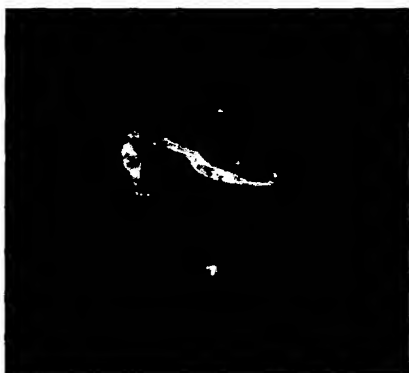
Chronic serum



EPIMASTIGOTE



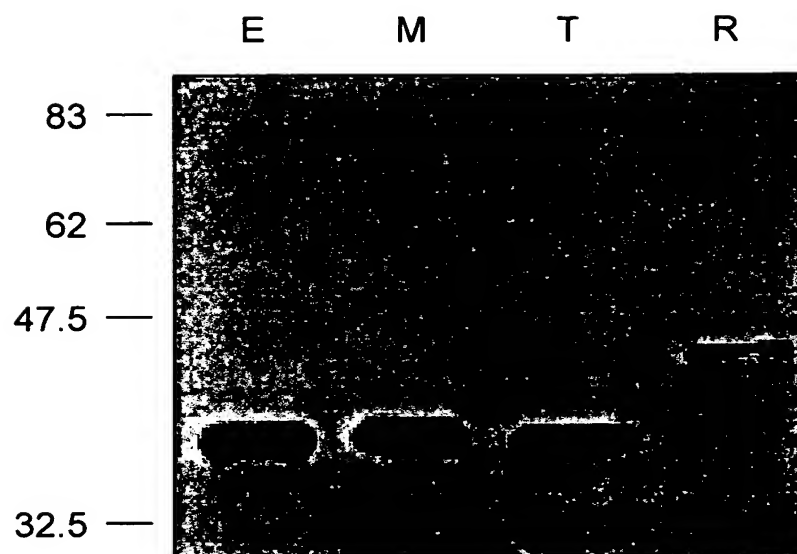
METACYCLIC



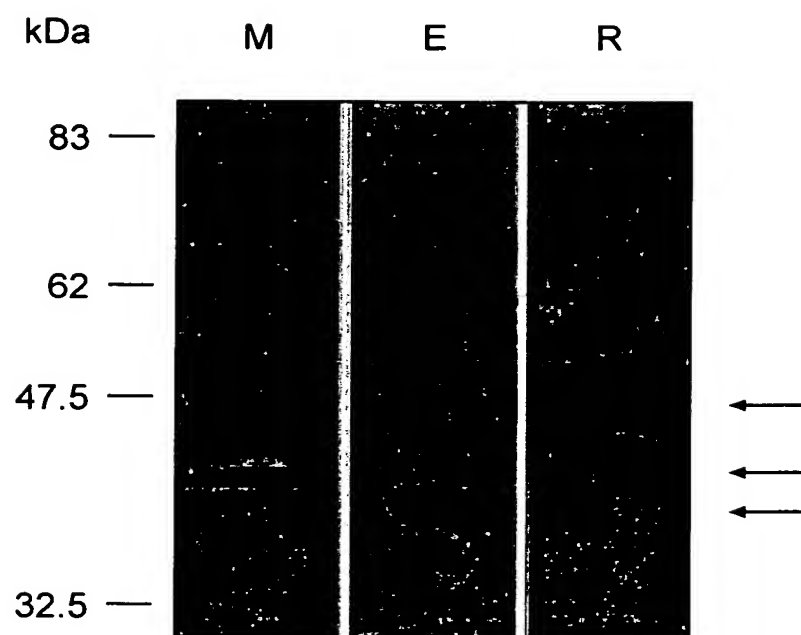
TRYPOMASTIGOTE



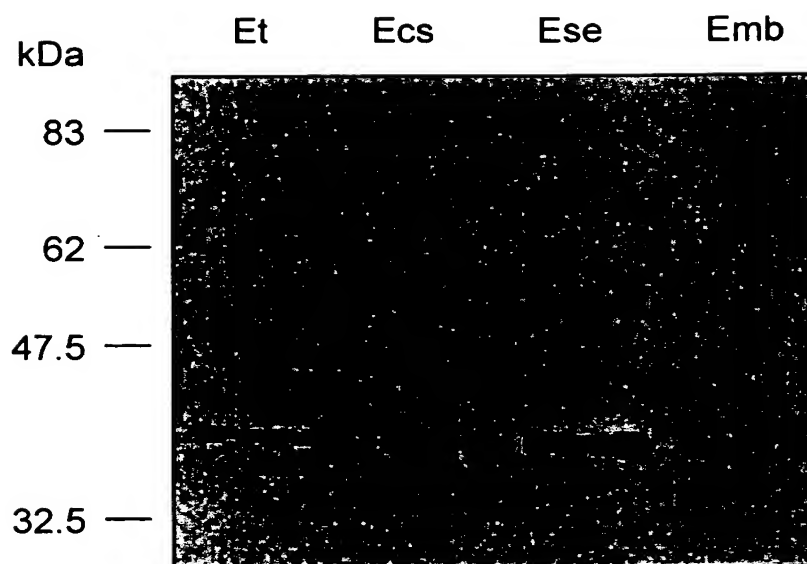
**FIG. 10A**



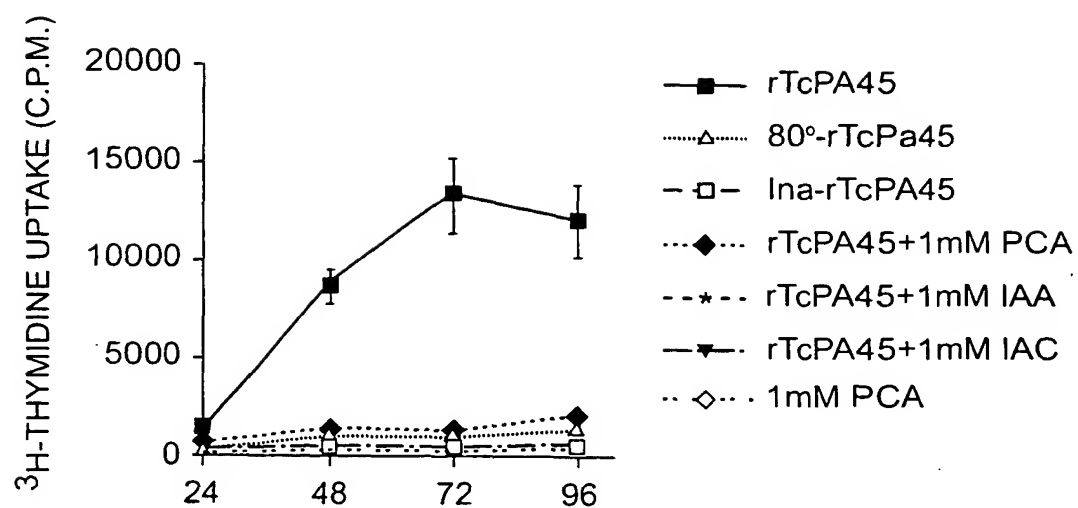
***FIG. 10B***



**FIG. 10C**

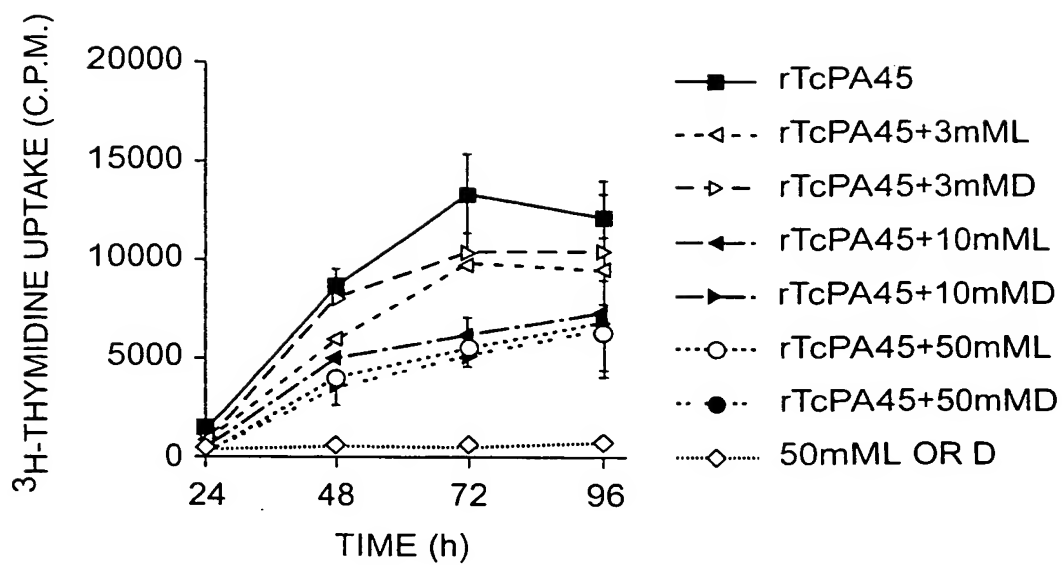


***FIG. 10D***



**FIG. 11A**





**FIG. 11B**

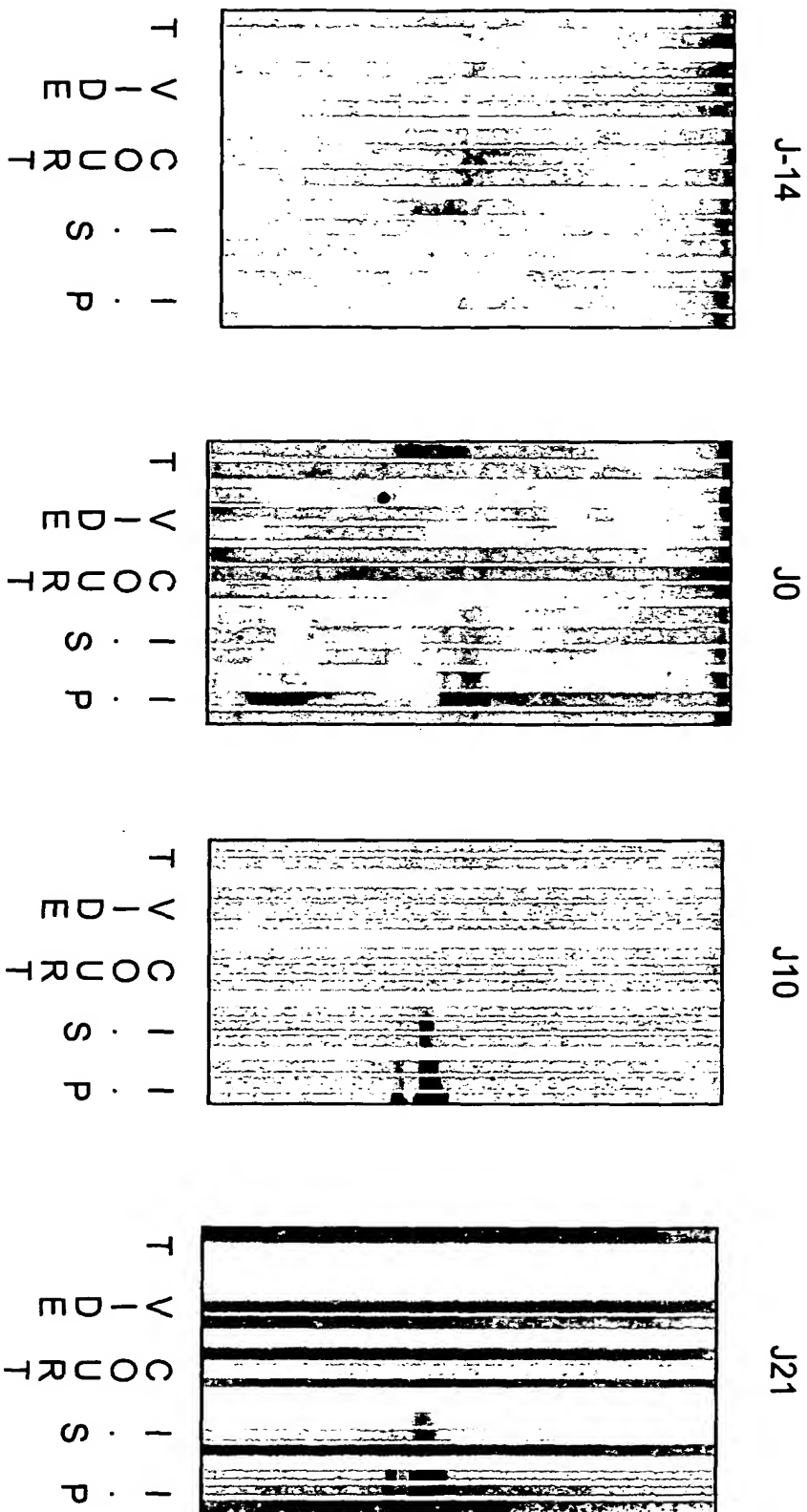
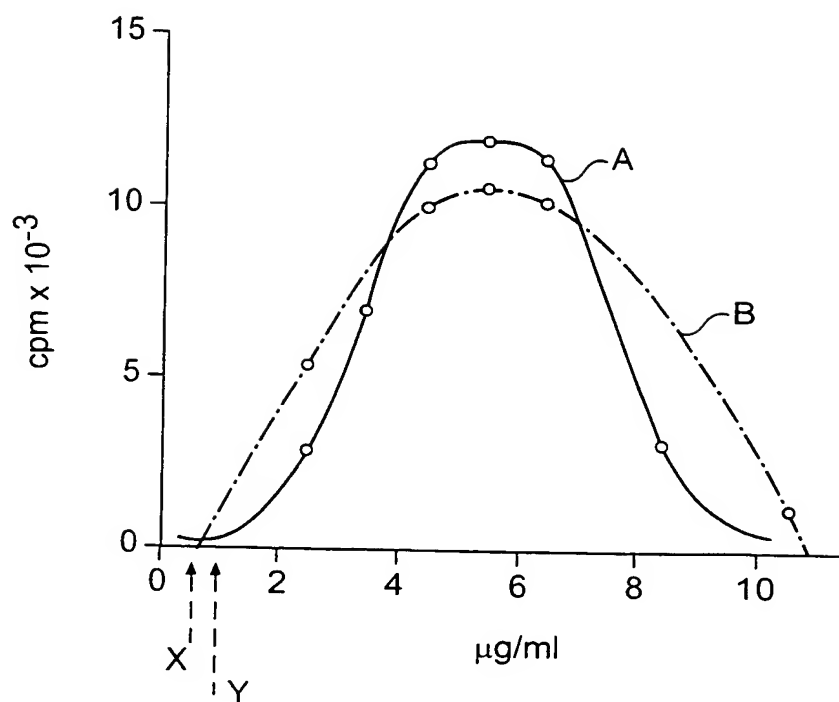
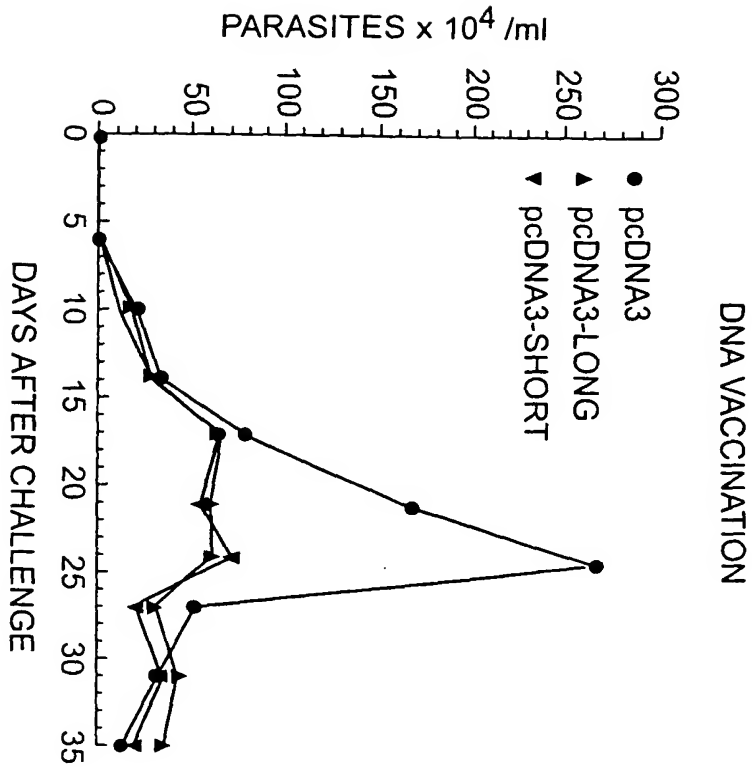


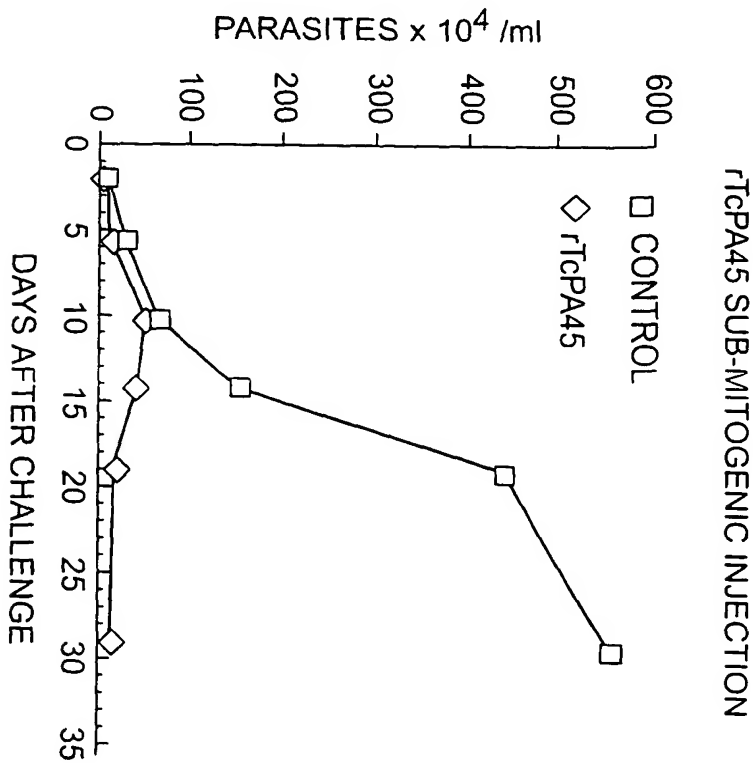
FIG. 12



**FIG. 13**



**FIG. 14A**



**FIG. 14B**

SEQ ID NO:2

Tc	RTGQEKLLFDQYKIIKGEKKEKKKNQ <del>NR</del> REHQQREIMRFKS	75
Tc	FTCIDMHTEGEARIVTSGLPHIPGSNMAEKKAYLQENMDYLRRGIMLEPRGHDDMFCAFLFDPIEGADLGMVF	150
Tc	MDTGCYLMCGHNSIAAVTAAVETGIVSVPAKATNPVVLDT <del>PAGLV</del> RGT <del>AHLQ</del> SGTESEVSNASIINVP <del>SFLYQ</del>	225
Tc	QDVVVVLPKPYGEVRVDIAFGGNFFAIVPAEQLGIDISVQNL <del>SRLQ</del> EAGELL <del>RTEIN</del> RSVKVQH <del>HPQL</del> PHINTVDC	300
Tc	VEIYGPTNPEANYK <del>NVVIFGNRQADR</del> SPCGT GTSAKMATLYAKGQLRIGET <del>FVYESILGSLFQGRV</del> --LGEE	371
Tc	RIPGVKVPVTKDAEEGMLVVTAEITGKA <del>FIMGENTMLFDPTDP</del> FKNGFTLKQ*	423

FIG. 15

SEQ ID NO:4

Tc		MRFKKS	75
Tc	FTCIDMHTEGEARIVTSGLPHIPGSNMAEKKAYIQENMDYLRRGIMLEPRGHDDMFGAFLFDPIEGADLGMVF		150
Tc	MDTGGYLNMCGHNSIAAVTAAVETGIVSVPAKATNPVVLDPAGLVRGTAHLQSGTESESVNASIINVPSFLYQ		225
Tc	QDVVVVLLPKPYGEVRVDIAFGGNFFAIVPAEQLGIDISVQNL SRLQEAGELLRT E INRSVKVQHPQLPHINTVDC		300
Tc	VEIYGPPTNPEANYKNVVI FGNRQADR SPCGT GTSAKMATLYAKGQLRIGETFEYESILGSLFQGRV--LGEE		371
Tc	RIPGVKVPVTKDAEEGMLVVTAEITGKA FIMGFNTMLFDPTDPFKNGFTLKQ*		423

FIG. 16

SEQ ID NO:7

POLYPYRIMIDINE RICH REGION



SPICE LEADER  
ACCEPTOR SITES

SIGNAL PEPTIDE

CCCTTTCTCTTTTAAAAAACAAAAAATTCGGGGGGAATATGGAACAGCGTATATGCGTAAGTGTCTGTCCCAACAAAAATTTT 90  
TTTTCGCCCTTCCCATTTTTTTTTTTTTTTTGTGTGTTCCCTTGATCTCTCGAACAGGGCAGGAAAGCTTCTGTTTGACCAAAATAT 12  
F S A F P F F F F F C V F P L I S R T G Q E K L L F D Q K Y 42  
AAAAATTATTAAGGCGGAGAAAAAAGAAAAAATCAACGACCAACAGAGAGAGAACCAACAAAAAGGAATTATGCGATT 270  
K I I K G E K K E K K N Q R A N R R E K Q Q K R E I M R F 72  
AAGAAATCATTCACATGCATCGACATGCAAGAGTGAACGACGACGCGATTGTGACGAGTGGTTGCCACACATTCAGGTTGCAAT 360  
K K S F T C I D M H T E G E A A R I V T S G L P H I P G S N 102  
ATGGCGAGAGAAAGCATACCTGCAGGAAAACATGGATTATTGAGCGCTGGCATATGCTGGAACCAACGTCATGATGATATGTTT 430  
M A E K K A Y L Q E N M D Y L R R G I M L E P R G K D D M F 132  
GGAGCCCTTTTATTGACCCCTATTGAAGAAGCGCTGACTTGGGCATGGTATTGATGATACCGGTGCTATTAAATATGTGTGACAT 520  
G A F L F D P I E E G A D L G M V F M D T G G Y L N M C G H 162  
AACTCAATTGCAGCGGTTACGGCGGCAATTGAACGGGAATTGTGAGCGTGCCGGCAAGCAACAATGTTCGGTTGTCTGACACACA 610  
N S I A A V T A A V E T G I V S V P A K A T N V P V V L D T 192  
CCTGCGGGGTGTCGCGGTAACGGCACCTTCAGAGTGTACTGAGAGTGAGGTGTCAATGCGAGTATTATCAATGTACCTCATTT 700  
P A G L V R G T A R L Q S G T E S E V S N A S I I N V P S F 222  
TTGTATCAGCAGGATGTGCTGCTGTGTTGCCAAAGCCCTATGCTGAAGTACGGGTTGATATTCATTTGGAGGCAATTTTTCGCCATT 790  
L Y Q Q D V V V V L P K P Y G E V R V D I A F G G N F F A I 252

FIG. 17A

GTTCCTCCGCGGAGCAGTTGGGAATTGATATCTCCGTTCAAAACCTCTCCAGGCTGCAGGAGGCGAGGAGAACTTCTGCGTACTGAATCAAT 880  
V P A E Q L G I D I S V Q N L S R L Q E A G E L L R T E I N 282  
CCGAGTGTGAAGTTACGACACCTCAGCTGCCCATATTAACACTGTGACTGTGTGAGATATACGGTCCGCCAACGAAACCGGAGCA 970  
R S V K V Q H P Q L P H I N T V D C V E I Y G P P T N P E A 312  
AACTACAAGAACGTTGTGATATTTGGCAATCGCCAGGCGGATCGCTCTCCATGTGGACAGGACACCAGCCCAAGATGGCAACACTTAT 1060  
N Y K N V V I F G N R Q A D R S P C G T G T S A K M A T L Y 342  
GCCAAGGCCAGCTTCGCAATCGAGAGACTTTTGTGTACGAGACGATACTCGGCTCACTTTCCAGGCGAGGCTACTTTGGGAGGAGCGA 1150  
A K G Q L R I G E T F V Y E S I L G S L F Q G R V L G E E R 372  
ATACCGGGGTGAAGGTGCCGCTGACCAAGATGCCGAGGAGGATGCTCGTTGTAAAGGAGGAGAAATTACTGAAAGGCTTTATCATG 1240  
I P G V K V P V T K D A E E G M L V V T A E I T G K A F I M 402  
GGTTTCAACACCATGCTGTTGACCCAACGGATCCGTTTAAGAACGGATTACATTTAAAGCAGTAGATCTGTTAGACACAGAAACTATT 1330  
G F N T M L F D P T D P F K N G F T L K Q \* 423  
GGGGAACACGTCCGAACAGCTGCTGTACGTGAAGGCTATTGAATGAATCGTTTATTTTATTTTATTTTATTTATTTAGTGCAAT 1420  
ATTATTAATTTTTTTGTGTTGGGTTTCAACGGTACCGGCTTGGGAGCAGGGAAGCGATAGCGGCGGACAATTTTTCCTTTAT 1510  
TTTCATTTTCATCTTCCTACCCAACCCCTTGCTTCCACCGGTCGCGGGGGGCTTGTGGGTGAGGAGTCTTAATCCCGCACCTCGG 1600  
AGGAATAACATATTTTCATTTTCATATCTTGAATCAAAAGGCAT 1651

POLYADENILATION SITE

Obs: UNDERLINED THE SEQUENCED PEPTIDES USED TO DEDUCE DEGENERATED PRIMERS  
FOR CLONING

(b) NUCLEOTIDE SEQUENCE AND PEPTIDE SEQUENCE TcPA45

FIG. 17B



SEQ ID NO:8

```
ATGCGTAAAGTGTCTGTCTCCCAACAAAATTTT 90
M R K S V C P K Q K F F 12
TTTTCCGCCCTCCCATTTTTTTTTTTTGTGTGTTCCCTGATCTCTCGACACAGGCGAGGAGAAAGCTTCTGTGTGACCAAAATAT 180
F S A F P F F F F C V F P L I S R T G Q E K L L F D Q K Y 42
AAATTATTAAAGCGCGAGAAAAAGAAAAAAATCAACGACGAAACAGAGAGAACACCAACAAAAAGGAATTATGCGATT 270
K I I K G E K K E K K N Q R A N R R E H Q Q K R E I M R F 72
AAGAAATCATTCACATGCATGCATGCATGCAGAGTGAGACGACGAGATTGTGACGAGTGTGTTGCCACACATTCCAGGTTGCAAT 360
K K S F T C I D M H T E G E A A R I V T S G L P H I P G S N 102
ATGCGGAGAGAAAGCATACCTGCAGGAAACATGATTATTGAGCGGTGCATATGCTGAACACGTCGTCATGATGATATGTT 430
M A E K K A Y L Q E N M D Y L R R G I M L E P R G H D D M F 132
GAGCCTTTTATTGACCCCTATTGAGAGAGCGCTGACTTGGCATGCTATTCATGATACCGGTGCTATTTAATATGTGGACAT 520
G A F L F D P I E E G A D L G M V F M D T G G Y L N M C G H 162
AACTCAATTGCAGCGGTACGGCGGCGAGTTGAAACGGGAATTGTAGCCGTGCCGGAAGCAACAATGTTCCGGTTGCTCGACACA 610
N S I A A V T A A V E T G I V S V P A K A T N V P V V L D T 192
CCTGCGGGGTGGTCCGCGGTACGGCACACCTTCAGAGTGTACTGAGAGTGAGGTGTCAAATGCGAGTATTATCAATGTACCCTCATTT 700
P A G L V R G T A H L Q S G T E S E V S N A S I I N V P S F 222
TTGTATCAGCAGATGTGGTGTGTGTGTTGCCAAAGCCCTATGTGAGTACGGGTGATATTCATTGAGGCAATTTTTTCCCATTT 790
L Y Q Q D V V V L P K P Y G E V R V D I A F G G N F F A I 252
GTTCGCCGAGCAGTTGGGAATTGATATCTCCGTCAAAACCTCTCCAGGCTGCAGAGGCGAGAGAACTTCTGCCGTACTGAATCAAT 880
V P A E Q L G I D I S V Q N L S R L Q E A G E L L R T E I N 282
CGCAGTGTGAGGTTCAGCACCCCTCAGCTGCCCATATTAACACTGTGCACTGTGTGAGATATACGGTCCGCCAACGAACCCGGAGGCA 970
R S V K V Q H P Q L P H I N T V D C V E I Y G P P T N P E A 312
```

FIG. 18A

AACTACAGACGCTGTGATATTGGCAATCCGAGCGGATCGCTCTCCATGTGGACAGCACCAGCCCAAGATGCCAACACTTAT 1060  
N X K N V V I F G N R Q A D R S P C G T G T S A K M A T L Y 342  
GCCAAGGCCAGCTTCGCATCGAGAGACTTTTGTGTACGAGACATCTCGGCTACTCTTCCAGGGCAGGGTACTTGGGAGGAGCGA 1150  
A K G Q L R I G E T F V Y E S I L G S L F Q G R V L G E E R 372  
ATACGGGGGTGAAGGTGCCGCTGACCAAGATGCCGAGGAAGGATGCTCGTTGTAAACGCAGAAATTACTGAAAGGCTTTTATCATG 1240  
I P G V K V P V T K D A E E G M L V V T A E I T G K A F I M 402  
GGTTTCACACCATGCTGTTTGACCCAACGGATCCGTTAAGACGGATTACATTAAAGCAGTAGATCTGCTAGAGCAGAAACTATT 1330  
G F N T M L F D P T D P F K N G F T L K Q \* 423  
GGGGAACAGGTGCGAACAGGTGCTGCTACGTGAAGGGTATTGAATGAATCGTTTTTTTATTATTATTATTATTATTATTATTAGTCATT 1420  
ATTATTAAATTTTTTTTTTTTGGGCTTTCACAGGTACCGCGTTGGGAGCAGGAGCATAGCGCGCGACAATTTTTCCTTTTAT 1510  
TTTCATTTTCATCTCTACCACAACCCCTTGGTTCACCGGTCGCGGGGGGCTTGTGGGTGAGGAGTCTTAATCCCGCACCCTCGG 1600  
AGCAATAACATATTTCATTTTCATATCTTGAATCAAAAGGCAT 1651

POLYADENILATION SITE

Obs: UNDERLINED THE SEQUENCED PEPTIDES USED TO DEDUCE DEGENERATED PRIMERS  
FOR CLONING

NUCLEOTIDE SEQUENCE AND PEPTIDE SEQUENCE TcPA45

FIG. 18B

SEQ ID NO:9

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CGAACAGGGCAGGAAAGCTTCTGTTGACCAAAATAT 270
R T G Q E K L L F D Q K Y 72
AAAATTATTAGGCGGAGAAAAAGAAAAAATCAACGACCAACAGAGAGAACACCAAAAAAGGAATTATGCGATTT 360
K I I K G E K K E K K N Q R A N R R E H Q Q K R E I M R F 102
AAGAAATCATTCACATGCATGCATACGGAAGGTGAAGCAGCAGCAGATTTGACGAGTGGTTGCCACACATTCAGGTTGCAAT 430
K K S F T C I D M H T E G E A A R I V T S G L P H I P G S N 132
ATGGCGAGAGAAAGCATACCTGCAGGAAAAACATGATTATTGAGCGCTGGCATAATGCTGCAACCAACCGTGTGTCATGATGATATGTTT 520
M A E K K A Y L Q E N M D Y L R R G I M L E P R G H D D M F 162
GGAGCCTTTTATTGACCCATTGAAGAAGCGCCTGACTTGGCATGCTATTTCATGATACCGGTGCTATTTAATATGTGTGACAT 610
G A F L F D P I E E G A D L G M V F M D T G G Y L N M C G H 192
AACTCAATTGCAGCGGTTACGGCGGAGTTGAACGGGAATTGTAGCGGTGCCGGAAGCAACAATGTTCCGGTGTCTCGACACA 700
N S I A A V T A A V E T G I V S V P A K A T N V P V V L D T 222
CCTGCGGGGTTGGTCCGGTACGGCACACCTTCAGAGTGTACTGAGATGAGGTGTCAATGCGAGTATTATCAATGTACCCTCATTT 790
P A G L V R G T A H L Q S G T E S E V S N A S I I N V P S F 252
TTGTATCAGCAGGATGTGGTGTGTGTTGCCAAAGCCCTATGCTGAGTACGGGTGATATTGCAATTTGAGGCAATTTTTCGCCATT 880
L Y Q Q D V V V L P K P Y G E V R V D I A F G G N F F A I 282
GTTCCCGGAGCAGTTGGGAATTGATATCTCCGTTCAAAACCTCTCCAGGCTGCAGGAGGAGCAGAGAACTTCTGCGTACTGAATCAAT 970
V P A E Q L G I D I S V Q N L S R L Q E A G E L L R T E I N 312
CGCAGTGTGAAGTTACGACACCTCAGCTGCCCATATTAACTGTGACTGTGTGAGATATACGGTCCGCCAACGAACCGGAGGCA 1060
R S V K V Q H P Q L P H I N T V D C V E I Y G P P T N P E A 342
AACTACAAGAACGTTGTGATATTGGCAATCGCCAGCGGATCGCTCTCATGTGGACAGGACCAAGCCAGGCAAGATGGCAACACTTAT 1150
N Y K N V V I F G N R Q A D R S P C G T G T S A K M A T L Y 372
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FIG. 19A

GCCAAAGGCCACGCTTCGCATCGGAGAGACTTTTGTGTACGAGAGCATTACTCGGCTCACTCTTCCAGGGCAGGGTACTTGGGAGGACCGA 1240  
A K G Q L R I G E T F V Y E S I L G S L F Q G R V L G E E R 402  
 ATACCGGGGGTGAAGGTGCGCGGTGACCAAGAATGCCGAGGAAGGATGCTCGTTGTAAACGGCAGAAATTACTGGAAGGCTTTATCATG 1330  
 I P G V K V P V T K D A E E G M L V V T A E I T G K A F I M 423  
 GGTTCACACCACTGCTGTTTGACCCACCGGATCCGTTTAAGAACGGATTCACATTAAAGCAGTAGATCTGGTAGACACAGAACTATT 1420  
 G F N T M L F D P T D P F K N G F T L K Q \*  
 GGGAACACCTGCCAACACAGTCTGCTACGTGAAGGTAATGAATGATCGTTTTTTTATTTTTATTTTTATTATTAGTGCATT 1510  
 ATTATTAAATTTTTTTTTTTGTTTTGGGGTTTCAACGGTAACCGCGTTGGGAGCAGGGAAGCGATAACGGCGCGACAAATTTTGTCTTTAT 1600  
 TTTCAATTTTCATCTTCCACCAACCCCTTGCTTCCACCGGTGCGGGGGGCTTGTGGGTGAGAGTCCCTAATCCCGCACCTCGG 1651  
 AGGAATAACATATTTTCAATTTTCATATCTTGGAATCAAAAGCAT

TTTCATTTCATCTTCCCTACCCCAACCCCTTGCTCCACCGTCCGGGGGGCTTGTGGTGAGGAGTCTAAATCCGCACCTCGG 1651

AGGAATTAACATATTCAATTTCATATCTTGAATCAAAGGCATT

POLYADENYLATION SITE

Obs: UNDERLINED THE SEQUENCED PEPTIDES USED TO DEDUCE DEGENERATED PRIMERS  
FOR CLONING

NUCLEOTIDE SEQUENCE AND PEPTIDE SEQUENCE TcPA45

**FIG. 19B**

SEQ ID NO:10

SIGNAL PEPTIDE

ATGCGTAAAGTGCTGTGCCCAACAATAATTTT

TTTTCCGCCCTTCCCATTTTTTTTTTTTGTGTGTTCCCTTGATCTCT

NUCLEOTIDE SEQUENCE OF SIGNAL SEQUENCE TcPA45

**FIG. 20**

SEQ ID NO:11

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AAGAAATCATTCACATGCATGCATACGACATACGGAAGCTGAAGCAGCACCGGATTGTGACGAGTGGTTGCCACACATTCCAGTTGCAAT
K K S F T C I D M H T E G E A A R I V T S G L P H I P G S N
ATGGCGAGAGAAGAAGCATACCTGCAGGAATAACATGATTATTGAGCGCTGGCATAATGCTGGAACCAACGTCGTGATGATGATGTTT
M A E K K A Y L Q E N M D Y L R R G I M L E P R G H D D M F
GGAGCCTTTTATTATTGACCCCTATTGAAGAAGCGCGTGACTTGGGCATGTATTCATGATACCGGTGGCTATTTAATATATGTGTGACAT
G A F L F D P I E E G A D L G M V F M D T G G Y L N M C G H
AACTCAATTGCAGCGGTTACGGCGGCAGTTGAACCGGAATTGTGAGCGTGCCGGCGAAGCAACAATGTTCCGGTGTCTCGACACACA
N S I A A V T A A V E T G I V S V P A K A T N V P V L D T
CCTGGGGGTTGGTGGCGGTACGGCACACCTTCAGAGTGGTACTGAGAGTGAGGTGTCAAATGCGAGTATTCAATGTAACCTCATTT
P A G L V R G T A H L Q S G T E S E V S N A S I I N V P S F
TTGTATCAGCAGGATGTGGTGGTGTGTGTCGCAAAAGCCCTATGCTGAAGTACGGGTGATATTTGCATTTGAGGCAATTTTTCGCCATT
L Y Q Q D V V V V L P K P Y G E V R V D I A F G G N F A I
GTTCCCGCGAGCAGTTGGGAATTGATATCTCCGTTCAAAACCTCTCCAGGCTGCAGGAGCAGGAGAACTTCTGCTACTGAATCAAT
V P A E Q L G I D I S V Q N L S R L Q E A G E L L R T E I N
CGCAGTGTGAAGTTCAGCACCTCAGCTGCCCATATTAACACTGTGACTGTGTGAGATATACGGTCCGCCAACGAACCGGAGGCA
R S V K V Q H P Q L P H I N T V D C V E I Y G P P T N P E A
AACTACAGAAGCCTTGATATTTTGGCAATCGCCAGCGGATCGCTCTCCATGTGGACAGCAAGCAACGCGCAAGATGGCAACACTTAT
N Y K N V V I F G N R Q A D R S P C G T G T S A K M A T L Y
GCCAAAGCGCAGCTTCGCATCGAGAGACTTTGTGTACGAGAGCATACTCGGCTCACTCTTCCAGGGCAGGGTACTTGGGAGGAGCGCA
A K G Q L R I G E T F V Y E S I L G S L F Q G R V L G E E R

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FIG. 21A

ATACCGGGGTGAAGGTGCCGGTGACCAAGATGCCGAGGAGGGAATCCTCGTTGTACGGCAGAAATTACTGAAAGCCTTTATCATG 1330  
I P G V K V P V T K D A E E G M L V V T A E I T G K A F I M 423  
GGTTCAACACCATGCTGTTTGACCCACGGAATCCGTTTAAAGACGATTCACATTTAAAGCAGTAGATTCTGTAGACACAGAAACTATT 1420  
G F N T M L F D P T D P F K N G F T L K Q \*  
GGGAACACGTGCCAACAGCTGCTACGTGAAGGGTATTGAATGAATCGTTTTTTTTTTTATTATTATTATTATTATTATTAGTGCAAT 1510  
ATTATTAAATTTTTTTTTTTTGTTTTGGGGTTCAACGGTACCGCGTTGGGACGAGGAGCATAGCGCGCGACAATTTTTGCTTTTAT 1600  
TTTCATTTTCATCTTCCTACCCAACCCCTTGCTCCACCGGTGCGGGGGGCTCTTGTGGGTGAGAGTCCTAATCCCGCACCCTCGG 1651  
AGGAATAACATATTTCAATTTCAATATCTTGAATCAAAAGGCAT

**FIG. 21B**